

FIG. 1

- 11 RADIATOR
- 14 WATER PUMP
- 17 ENGINE
- 4 VEHICLE SPEED SENSOR
- 22 ABNORMAL STATE JUDGING UNIT

FIG. 2

- a1 START ENGINE
- a2 UNDER SEMIWARMING-UP STATE?
- a3 SET SEMIWARMING-UP STATE FLAG
- a4 SET STATE FLAG OTHER THAN SEMIWARMING-UP STATE

FIG. 3

- b1 ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT HAS NOT YET BEEN ACCOMPLISHED?
- b2 SEMIWARMING-UP STATE FLAG IS SET?
- b3 FORCIBLY DRIVE ELECTRIC MOTOR FAN
- b4 DETECT TEMPERATURE OF COOLING WATER, AND PREDICT TEMPERATURE OF COOLING WATER BASED UPON TRAVELING STATE
- b5 DIFFERENCE BETWEEN DETECTED TEMPERATURE AND PREDICTED TEMPERATURE IS SMALLER THAN ABNORMAL STATE JUDGING VALUE?
- b6 SET ABNORMAL STATE SETTING FLAG, AND ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT IS COMPLETED
- b7 JUDGE THAT THERMOSTAT IS OPERATED UNDER NORMAL STATE

FIG. 4

- c1 ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT HAS NOT YET BEEN ACCOMPLISHED?
- c2 SEMIWARMING-UP STATE FLAG IS SET?
- c3 VEHICLE IS STOPPED?
- c4 SET DRIVE DUTY TO 50 %
- c5 CALCULATE DRIVE DUTY CORRESPONDING TO PRESENT VEHICLE SPEED WITH REFERENCE TO DUTY MAP
- c6 DRIVE ELECTRIC MOTOR FAN
- c7 DETECT TEMPERATURE OF COOLING WATER, AND PREDICT TEMPERATURE OF COOLING WATER BASED UPON TRAVELING STATE
- c8 DIFFERENCE BETWEEN DETECTED TEMPERATURE AND PREDICTED TEMPERATURE IS SMALLER THAN ABNORMAL STATE JUDGING VALUE?
- c9 SET ABNORMAL STATE SETTING FLAG, AND ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT IS COMPLETED
- c10 JUDGE THAT THERMOSTAT IS OPERATED UNDER NORMAL STATE

FIG. 5

- d1 ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT HAS NOT YET BEEN ACCOMPLISHED?
- d2 SEMIWARMING-UP STATE FLAG IS SET?
- d3 ELECTRIC MOTOR FAN IS UNDER DRIVE?
- d4 PRESENT TIME IS TIME FOR EXECUTING ABNORMAL STATE JUDGING PROCESS OPERATION?

- d5 DETECT TEMPERATURE OF COOLING WATER PLURAL TIMES WHEN ELECTRIC MOTOR IS DRIVEN
- d6 STOP ELECTRIC MOTOR FAN
- d7 PRESENT TIME IS TIME FOR EXECUTING ABNORMAL STATE JUDGING PROCESS OPERATION?
- d8 DETECT TEMPERATURE OF COOLING WATER WHEN ELECTRIC MOTOR FAN IS STOPPED
- d9 DRIVE ELECTRIC MOTOR FAN
- d10 DETECT TEMPERATURE OF COOLING WATER, AND PREDICT TEMPERATURE OF COOLING WATER BASED UPON TRAVELING CONDITION
- d11 TEMPERATURES OF COOLING WATER ARE DETECTED PLURAL TIMES WHEN ELECTRIC MOTOR FAN IS DRIVEN AND STOPPED
- d12 CALCULATE AVERAGE VALUE OF DIFFERENCES BETWEEN DETECTED TEMPERATURES WHEN ELECTRIC MOTOR FAN IS DRIVEN AND STOPPED
- d13 AVERAGED VALUE OF DIFFERENCES BETWEEN DETECTED TEMPERATURES WHEN ELECTRIC MOTOR FAN IS DRIVEN AND STOPPED IS LARGER THAN, OR EQUAL TO ABNORMAL STATE JUDGING VALUE, OR DIFFERENCE BETWEEN DETECTED TEMPERATURE AND PREDICTED TEMPERATURE IS SMALLER THAN ABNORMAL STATE JUDGING VALUE?
- d14 SET ABNORMAL STATE SETTING FLAG, AND ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT IS COMPLETED
- d15 JUDGE THAT THERMOSTAT IS OPERATED UNDER NORMAL STATE

FIG. 6

- e1 START ENGINE

- e2 DETECT TEMPERATURE OF COOLING WATER, AND PREDICT TEMPERATURE OF COOLING WATER UNDER DRIVE CONDITION
- e3 TIME REQUIRED THAT TEMPERATURE OF COOLING WATER IS INCREASED UP TO VALVE OPENING TEMPERATURE OF THERMOSTAT IS LONGER THAN, OR EQUAL TO PREDETERMINED TIME?
- e4 DIFFERENCE BETWEEN DETECTED TEMPERATURE AND PREDICTED TEMPERATURE IS SMALLER THAN ABNORMAL STATE JUDGING VALUE?
- e7 SET SEMI WARMING-UP STATE FLAG
- e5 SET ABNORMAL STATE SETTING FLAG, AND ABNORMAL STATE JUDGING PROCESS OPERATION AS TO THERMOSTAT IS COMPLETED
- e6 JUDGE THAT THERMOSTAT IS OPERATED UNDER NORMAL STATE

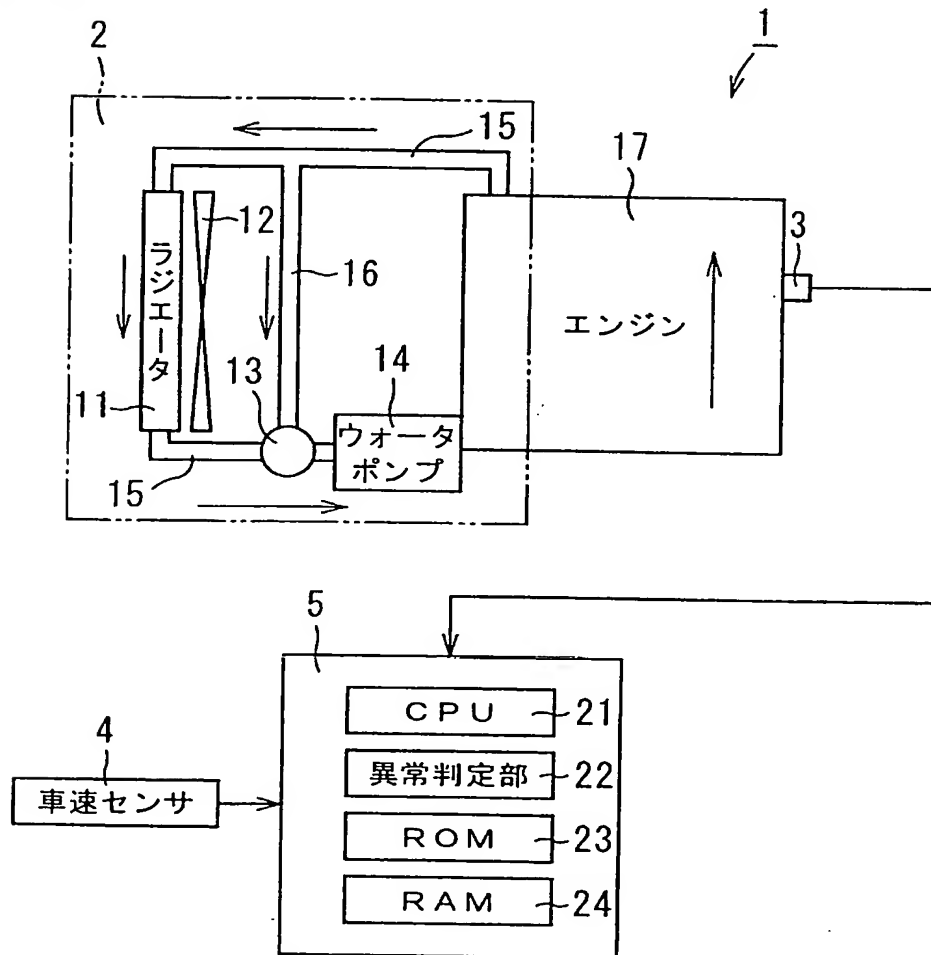
FIG. 7

- 31 RADIATOR
- 34 WATER PUMP
- 37 ENGINE

【書類名】 図面

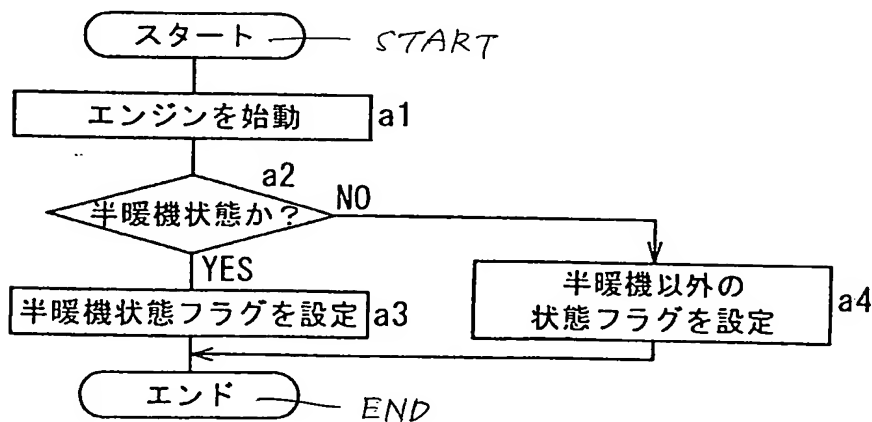
【図1】

FIG. 1



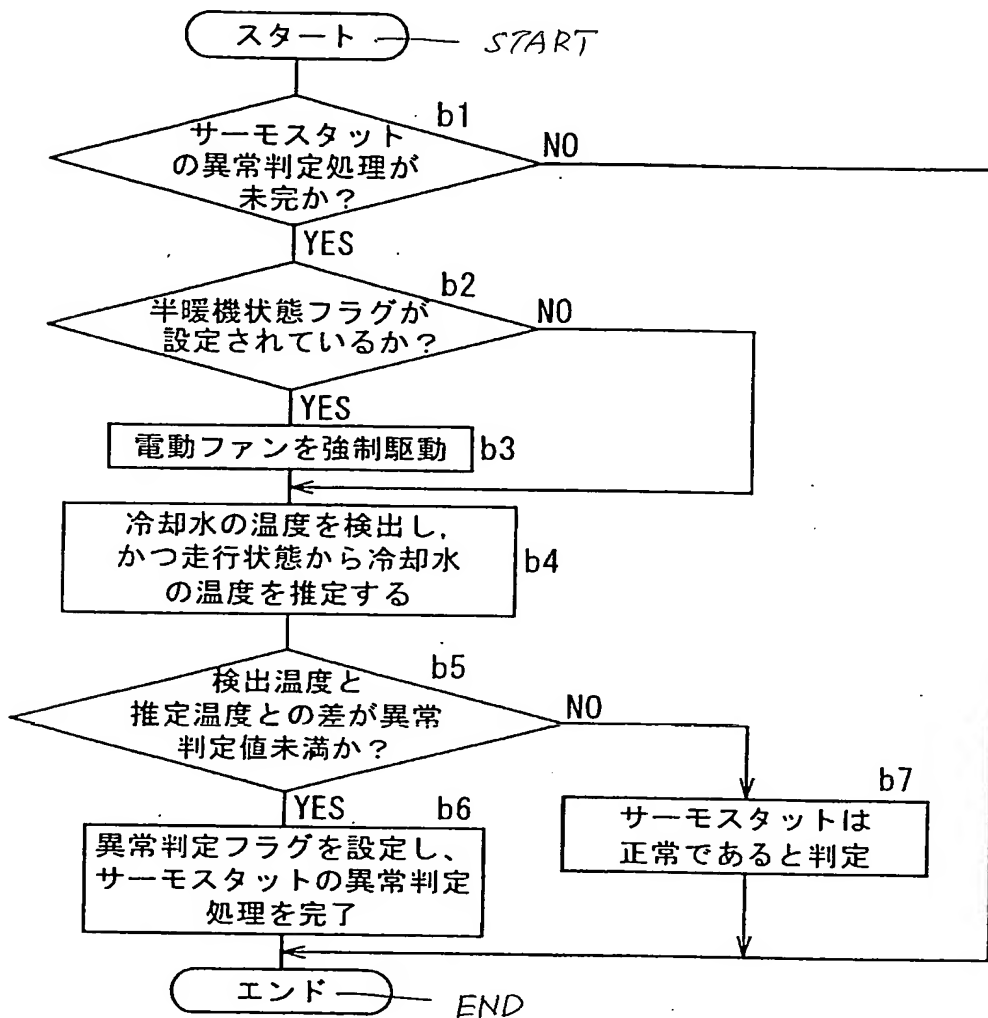
【図2】

FIG. 2



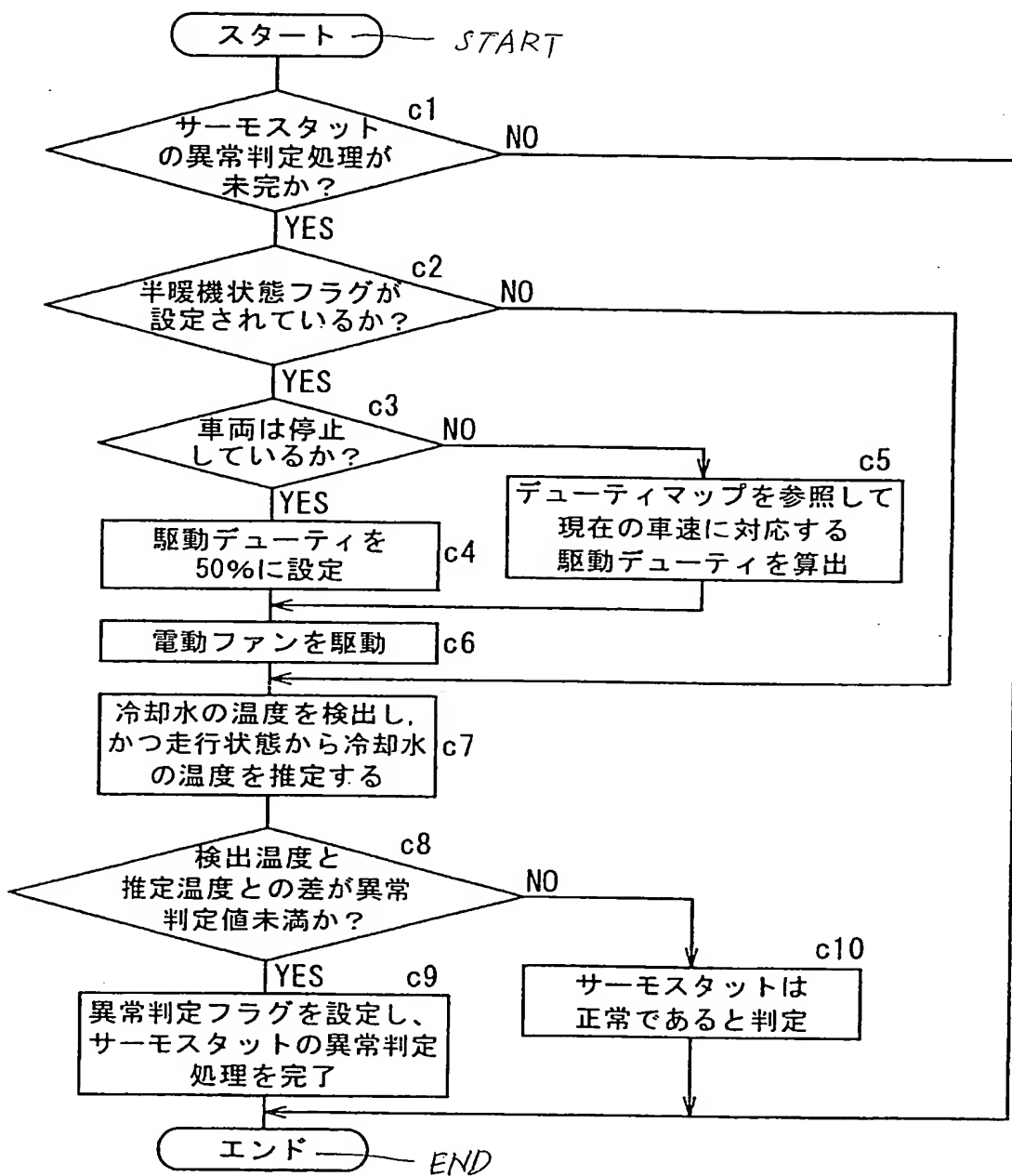
【図3】

FIG. 3



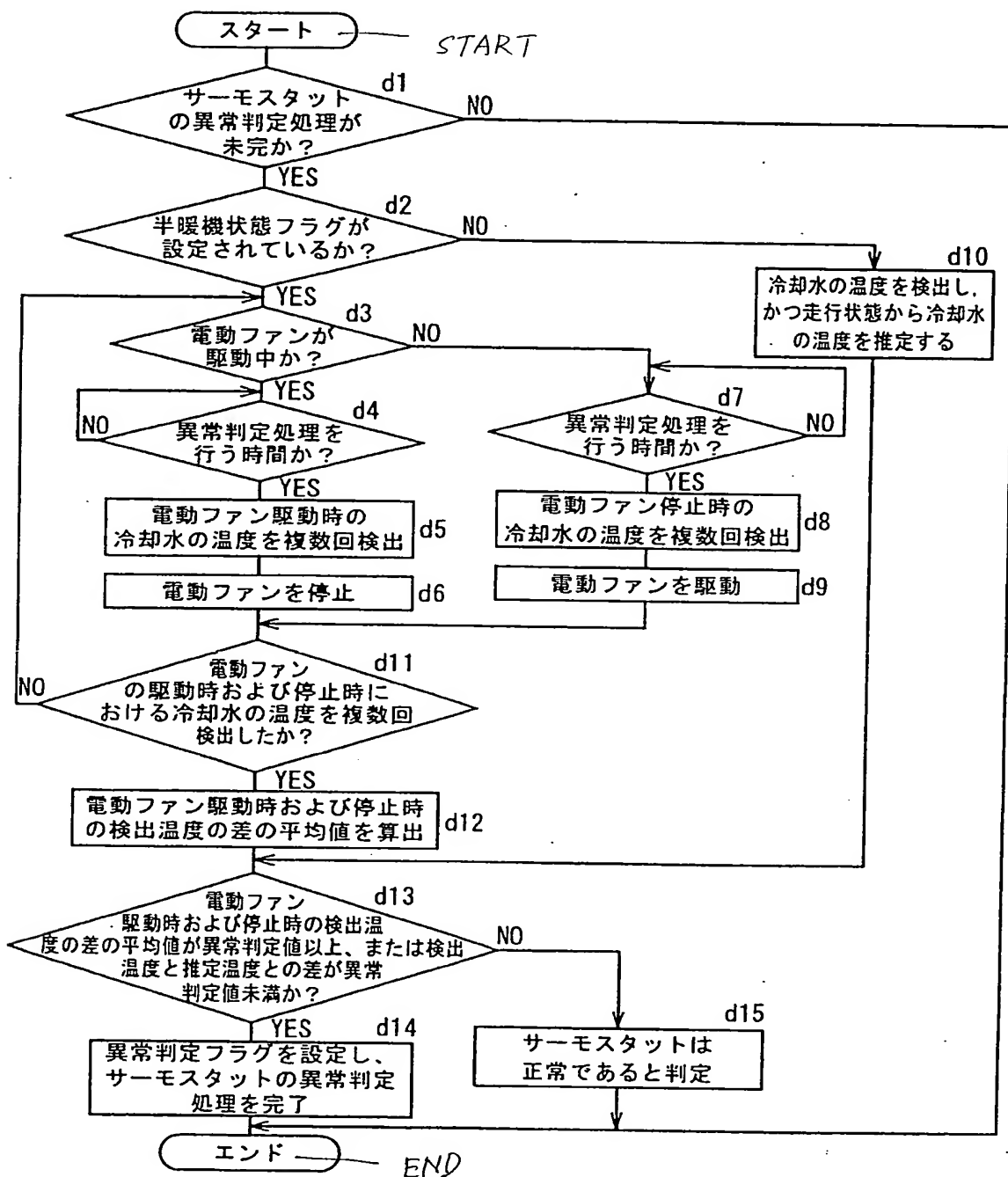
【図4】

FIG. 4



【図5】

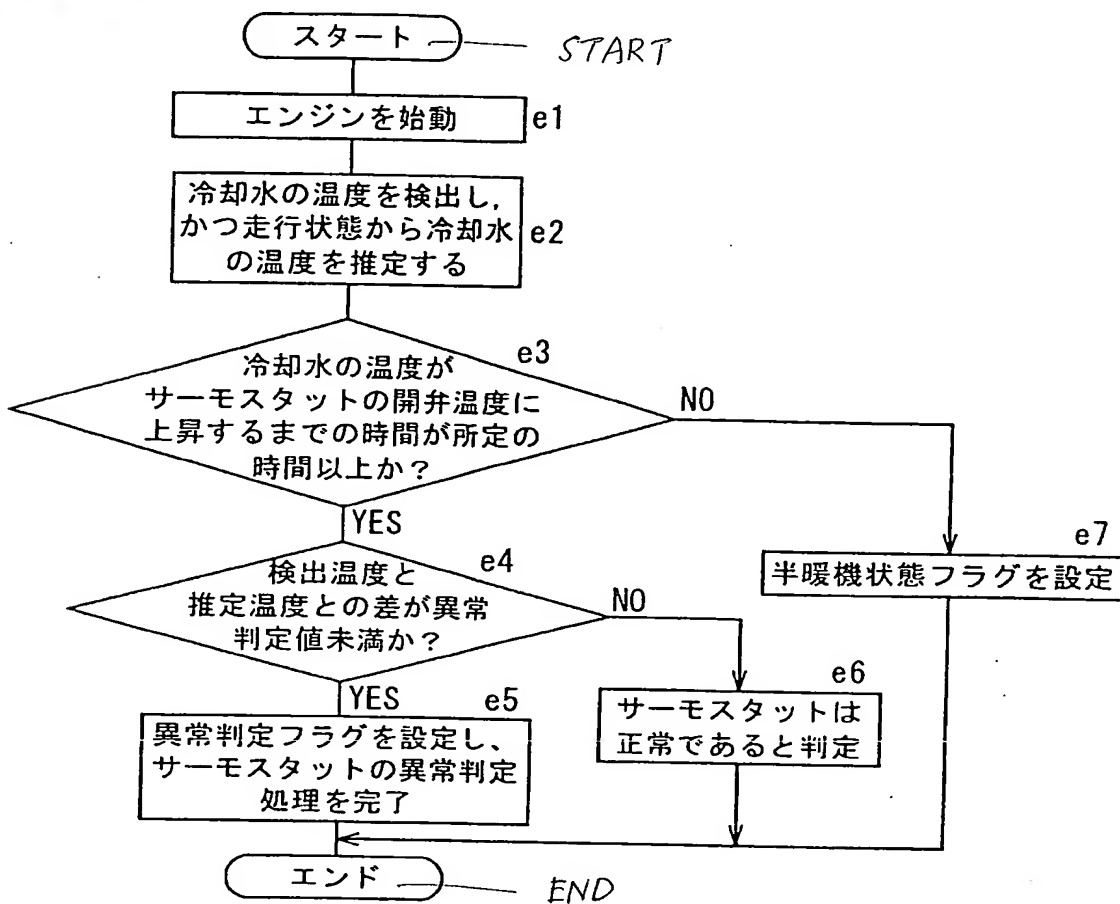
FIG. 5





【図6】

FIG. 6



【図7】

FIG. 7

